Aviation

Safety Data Sheet

Issued: January 5, 1998

SDS No. DMC05100

AeroShell Performance Additive 101

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product name: AeroShell Performance Additive 101

Product code: 8Q462

Product type: Fuel additive

Supplier: Shell Aviation Ltd.

Address: Shell-Mex House, Strand
London WC2R 0ZA

Contact numbers:

Telephone: +44-(0)171-546-2094
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation description: A mixture of polymeric materials and antioxidant in highly refined mineral oil and hydrocarbon solvents

Dangerous components/constituents:

Component name	CAS number	Content range	EC hazard	R phrases
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	1 - 5%(m/m)	*	
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	50 - 80 %(m/m)	Xn Xi	R65 R37/38
Naphthalene	91-20-3	5 - 10	Xn Xi	R22 R36/38
Butylated hydroxytoluene	128-37-0	5 - 10%m/m		

* DMSO extract by IP346 less than 3%m/m

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3. HAZARDS IDENTIFICATION

Human health hazards: Excessive dermal exposure causes defatting and drying of skin. inhalation of vapours may cause irritation of the respiratory tract, dizziness, headache, nausea.

Safety hazards: Not classified as flammable, but will burn.

Environmental hazards: Not readily biodegradable. Has the potential to bioaccumulate. Expected to be slightly toxic to aquatic organisms. Large volumes may penetrate soil and could contaminate groundwater.

4. FIRST AID MEASURES

Symptoms and effects: Prolonged exposure to vapour/mist concentrations above the recommended occupational exposure standard may cause: headache, dizziness, nausea, irritation of the eyes, upper respiratory tract, mouth and digestive tract, asphyxiation, unconsciousness and even death. Splashes into the eye may cause irritation and conjunctivitis. If ingested can lead to irritation of the mouth, irritation of the throat, irritation of the digestive tract, vomiting, convulsions and coma. Aspiration into the lungs may occur directly or following ingestion. This can cause chemical pneumonitis which may be fatal.

First Aid - Inhalation: Remove to fresh air. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeat absent give external cardiac compression. Monitor breathing and pulse. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

First Aid - Skin: Wash skin with water using soap if available. Contaminated clothing must be removed as soon as possible. It must be laundered before reuse.

First Aid - Eye: Flush eye with water. If persistent irritation occurs, obtain medical attention.

First Aid - Ingestion: DO NOT DELAY. Do not induce vomiting. Protect the airway if vomiting begins. Give nothing by mouth. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

Advice to physicians: Treat symptomatically. Diagnosis of ingestion of this product is by the characteristic odour on the victim's breath and from the history of events. In cases of ingestion, consider gastric lavage. Gastric lavage must only be undertaken after cuffed endotracheal intubation in view of the risk of aspiration. In cases of chemical pneumonitis, antibiotic and corticosteroid therapy should be considered. Administration of medicinal liquid paraffin may reduce absorption from the digestive tract.

5. FIRE FIGHTING MEASURES

Specific hazards: Combustion products may include: carbon monoxide, oxides of nitrogen, oxides of sulphur, oxides of phosphorus, unidentified organic and inorganic compounds.

Extinguishing media: Foam and dry chemical powder. Carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media: Water in a jet. Use of Halon extinguishers should be avoided for environmental reasons.

Protective equipment: Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

Other information: Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Vapour can travel along the ground for considerable distances. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Do not breath vapour, mists, aerosols. Ventilate contaminated area thoroughly. Avoid contact with skin, eyes and clothing. Take off immediately all contaminated clothing.

Personal protection: Wear: impervious overalls, PVC or nitrile rubber gloves; safety shoes or boots - chemical resistant, monogoggles.

Environmental precautions: Prevent from entering into drains, ditches or rivers. Use appropriate containment to avoid environmental contamination. Inform local authorities if this cannot be prevented.

Clean-up methods - small spillage: Absorb or contain liquid with sand, earth or spill control material. Shovel into a suitable, clearly marked container for subsequent safe disposal in accordance with local regulations.

Clean-up methods - large spillage: Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

Other information: Observe all relevant local regulations. Spilled product must not be re-used as an aviation fuel additive. See Section 13 for information on disposal.

7. HANDLING AND STORAGE

Handling: When using do not eat, drink or smoke. Only use in well-ventilated areas. When handling product in drums or totes, safety footwear should be worn and proper handling equipment should be used. Prevent spillages.

Handling temperature: Ambient.

Storage: Keep only in original container. Keep in a cool, dry, well-ventilated place. Keep away from sources of heat or ignition. Keep in a bunded area.

Storage temperature: Ambient.

Product transfer: Electrostatic charges may be generated during pumping. Ensure electrical continuity by bonding all equipment.

Other information: Never siphon by mouth.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure standards: In the absence of occupational exposure standards for this product, it is recommended that the following are adopted:

Component name	Limit type	Value	Unit	Other information
Distillates (petroleum), solvent-dewaxed heavy paraffinic	TWA	5	mg/m^3	Ref: ACGIH
Naphthalene	TWA	10	ppm	Ref: ACGIH
Butylated hydroxytoluene	TWA	10	mg/m^3	Ref: ACGIH

Note: ACGIH - 'Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices', American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio, 1996 edition.

Hygiene measures: Wash hands before eating, drinking, smoking and using the toilet.

Respiratory protection: Not normally required. If risk of inhalation wear half mask respirator with organic vapour cartridge and built-in particulate filter NPF 20 (gas only).

Hand protection: PVC or nitrile rubber gloves.

Eye protection: Wear chemical monogoggles if splashes are likely to occur or in high pressure applications.

Body protection: Wear overalls to minimise contamination of personal clothing. Launder overalls and undergarments regularly. Safety shoes or boots - chemical resistant. If splashes are likely to occur wear a PVC apron. Minimise all forms of skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid at ambient temperature
Colour:	Brown
Odour:	Strong
Vapour pressure:	Data not available
Density:	911 kg/m^3 at 15°C
Kinematic viscosity:	8.64 mm^2/s at 40°C
Vapour density (air=1):	>1
Flash point:	74°C (PMCC)
Flammability limit - lower:	Data not available
Flammability limit - upper:	Data not available
Auto-ignition temperature:	Data not available
Oxidising properties	
Evaporation rate (ether=1)	>1
Solubility in water:	<0.01%
n-octanol/water partition coefficient:	Data not available

10. STABILITY/REACTIVITY

Stability: Stable.

Conditions to avoid: Heat, flames and sparks.

Materials to avoid: Strong oxidizing agents.

Hazardous decomposition products: Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for assessment: Toxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the toxicology of similar products.

Acute toxicity - oral: LD_{50} > 2000 mg/kg (estimated value)

Acute toxicity - dermal: LD_{50} > 2000 mg/kg (estimated value)

Eye irritation: Expected to be slightly irritant.

Skin irritation: Irritant.

Respiratory irritation: Data not available from animal studies.

Skin sensitization: Not expected to be a skin sensitizer

(Sub) chronic toxicity: This product has not been evaluated in long-term chronic exposure tests. Repeated skin exposure expected to cause moderate to severe irritation. Repeated inhalation of mists expected to cause irritation of the respiratory tract.

Carcinogenicity: This product has not been evaluated in long-term chronic exposure tests. Dermal application to mice expected to cause tumours. Carcinogenic response may be a consequence of repeat, local contact and the exposure conditions.

Human effects: Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Under conditions of poor personal hygiene, excessive exposure may lead to irritation, oil acne and folliculitis and development of warty growths which may subsequently become malignant. See Section 4 for information regarding acute effects to humans.

12. ECOLOGICAL INFORMATION

Basis for assessment: Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility: Liquid under most environmental conditions. Emulsifies in water. Product remaining on soil surface will partly evaporate, but a significant proportion will remain after one day. If the product enters soil, one or more constituents will be mobile and may contaminate groundwater.

Persistence/degradability:

COD:	2510 $mg0_2/g$
TOC:	835 mgC/g
Closed bottle test:	35% degradation after 28 days

Ecotoxicity: Estimated to be moderately toxic

Other information: This product is a preparation. The EC has not yet defined criteria for classifying products as dangerous for the environment.

13. DISPOSAL CONSIDERATIONS

Precautions: See Section 8.

Waste disposal: Waste arising from a spillage should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses.

Product disposal: As for waste disposal.

Container disposal: All containers should be emptied and returned to the supplier.

Local legislation:

14. TRANSPORT INFORMATION

Not dangerous for conveyance under UN, IMO, ADR/RID and IATA/ICAO codes.

15. REGULATORY INFORMATION

EC Label name: Contains kerosine - unspecified

EC Classification: Irritant

EC Symbols: Xi

EC Risk Phrases: R37/38 Irritating to respiratory system and skin

EC Safety Phrases:

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 After contact with skin, wash immediately with plenty of soap and water

S36/37/38 Wear suitable protective clothing, gloves and eye/face protection

S43 In case of fire use foam/dry powder/CO_2 - Never use water

EINECS (EC): All components listed.

MITI (Japan): Not established.

TSCA (USA): All components listed.

AICS (Australia): All components listed.

DSL (Canada): All components listed.

National legislation:

Other information:

16. OTHER INFORMATION

Uses and restrictions: Use only as an aviation turbine fuel additive package. Consult 'The AeroShell Book', published by Shell Aviation Limited, for further details and examples, including specification approvals. This product must be used, handled and applied in accordance with the requirements of the equipment manufacturer's manuals, bulletins and other documentation.

Technical contact point: Shell Aviation Ltd. OIAM/37

Technical contact number:

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Revisions highlighted:

SDS distribution:

This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

Other information:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.